

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application. Claim 1 is slightly amended, replacing “wherein” with “and” to avoid the repetition of “wherein” in the same line of the claim. This amendment is not of a substantive nature.

New claims 45 and 46 are added. Claims 45 and 46 are identical to claims 1 and 42, respectively, with the exception that they include the phrase “wherein the reactive site is introduced by mutagenizing a nucleic acid encoding said wild-type of said antibody,” further clarifying the term “mutant.” Applicants’ representative discussed this claim amendment with the Examiner during their teleconference. The Examiner indicated that he would look favorably upon entry of claims including this clarifying feature.

Listing of Claims:

1. (Presently Amended) A mutant antibody comprising a reactive site not present in the wild-type of said antibody and six complementarity determining regions (CDRs) that recognize a metal chelate or portions thereof, wherein said reactive site is in a position proximate to or within said complementarity-determining regions,
wherein said reactive site is the mutation and,
wherein said reactive site interacts with a reactive group on said metal chelate and ~~wherein~~ said reactive group is selected from carboxyl groups, hydroxyl groups, haloalkyl groups, dienophile groups, aldehyde groups, ketone groups, sulfonyl halide groups, thiol groups, amine groups, sulfhydryl groups, alkene groups, and epoxide groups.
2. (Previously Presented) The mutant antibody according to claim 1, wherein said reactive site is a side-chain of a naturally occurring or non-naturally occurring amino acid.
3. (Previously Presented) The mutant antibody according to claim 2, wherein said reactive site is the –SH group of cysteine.

10. (Previously Presented) A polypeptide comprising a peptide sequence according to SEQ. ID NO.:5 (FIG. 12).

11. (Previously Presented) A polypeptide comprising a peptide sequence according to SEQ. ID NO.: 7 (FIG. 14).

14. (Previously Presented) The mutant antibody according to claim 1, wherein said mutant antibody is a mutant of the antibody deposited as ATCC Deposit No. PTA-4696.

15. (Previously Presented) The mutant antibody according to claim 14, wherein serine-95 of the light-chain is substituted by a cysteine residue is the mutation.

16. (Previously Presented) The mutant antibody according to claim 1, wherein said antibody is a bifunctional antibody further comprising a second complementarity-determining region that specifically binds to a cell-surface antigen.

17. (Previously Presented) The mutant antibody according to claim 1, further comprising a targeting moiety covalently attached thereto, wherein the targeting moiety and the mutant antibody are not the same.

18. (Previously Presented) The mutant antibody according to claim 17, having the structure:

Ab L T

wherein,

Ab represents said antibody;

L is a chemical bond or linking group; and

T is said targeting moiety.

19. (Previously Presented) The mutant antibody according to claim 17, wherein said targeting moiety is an antibody that binds specifically to a cell surface antigen.

20. (Previously Presented) The mutant antibody according to claim 1, further comprising said metal chelate bound to said complementarity-determining region, wherein said chelate comprises a reactive functional group of complementary reactivity to said reactive site of said antibody.

21. (Previously Presented) The mutant antibody according to claim 20, further comprising a covalent bond formed by reaction of said reactive site of said antibody and said reactive functional group of said chelate, wherein said covalent bond is formed by the interaction of said reactive site and a reactive functional group which is selected from: an acryloyl moiety, a haloalkyl moiety, an alkene moiety, and an acrylamido moiety.

22. (Previously Presented) The mutant antibody according to claim 20, wherein said reactive group of said chelate is an acrylamido moiety.

23. (Previously Presented) The mutant antibody according to claim 1, wherein said metal chelate is a polyaminocarboxylate chelate of a metal ion selected from the group consisting of transition metal ions and lanthanide ions.

24. (Previously Presented) A pharmaceutical composition comprising the mutant antibody according to claim 17, and a pharmaceutically acceptable carrier.

25. (Previously Presented) A mutant antibody comprising a cysteine residue not present in the wild-type of said antibody and six complementarity determining regions (CDRs) that recognize a metal chelate or portions thereof, wherein said cysteine is in a position proximate to or within said complementarity-determining regions, wherein said cysteine residue is the mutation.

30. (Previously Presented) The antibody according to claim 25, wherein said antibody is a bifunctional antibody further comprising a second complementarity-determining region that specifically binds to a cell-surface antigen.

31. (Previously Presented) The mutant antibody according to claim 25, further comprising a targeting moiety covalently attached thereto, wherein the targeting moiety and the mutant antibody are not the same.

32. (Previously presented) The mutant antibody according to claim 31, having the structure:

Ab L T

wherein,

Ab represents said antibody;

L is a chemical bond or linking group that may contain one or more functional groups; and

T is said targeting moiety.

33. (Previously Presented) The mutant antibody according to claim 31, wherein said targeting moiety is a member selected from the group consisting of antibodies and antibody fragments, each of which bind specifically to a cell surface antigen.

34. (Previously Presented) The mutant antibody according to claim 25, further comprising said metal chelate bound to said complementarity-determining region, wherein said chelate comprises a reactive functional group of complementary reactivity to the -SH side-chain of said cysteine residue.

35. (Previously Presented) The mutant antibody according to claim 34, further comprising a covalent bond formed by reaction of the -SH side-chain of cysteine and said reactive functional group of said chelate.

36. (Previously Presented) The mutant antibody according to claim 35, wherein said reactive functional group of said chelate is an acrylamido moiety.

37. (Previously Presented) The mutant antibody according to claim 25, wherein said metal chelate is a polyaminocarboxylate chelate of a metal ion selected from the group consisting of transition metal ions and lanthanide ions.

38. (Previously Presented) A pharmaceutical composition comprising the mutant antibody according to claim 31, and a pharmaceutically acceptable carrier.

42. (Previously Presented) A mutant antibody comprising a reactive site not present in the wild-type of said antibody and six complementarity determining regions (CDRs) that specifically bind a metal chelate, wherein said reactive site is in a position proximate to or within said complementarity-determining regions,

wherein said reactive site is the mutation and,

wherein said reactive site interacts with a reactive group on the metal chelate selected from carboxyl groups, hydroxyl groups, haloalkyl groups, dienophile groups, aldehyde groups, ketone groups, sulfonyl halide groups, thiol groups, amine groups, sulfhydryl groups, alkene groups, and epoxide groups.

43. (Cancel)

44. (Previously Presented) The mutant antibody according to claim 1, wherein said mutant antibody is a mutant of CHA255.

45. (New) A mutant antibody comprising a reactive site not present in the wild-type of said antibody and six complementarity determining regions (CDRs) that recognize a metal chelate or portions thereof, wherein said reactive site is in a position proximate to or within said complementarity-determining regions,

wherein said reactive site is introduced by mutagenizing a nucleic acid encoding said wild-type of said antibody and,

wherein said reactive site interacts with a reactive group on said metal chelate and said reactive group is selected from carboxyl groups, hydroxyl groups, haloalkyl groups,

dienophile groups, aldehyde groups, ketone groups, sulfonyl halide groups, thiol groups, amine groups, sulfhydryl groups, alkene groups, and epoxide groups.

46. (New) A mutant antibody comprising a reactive site not present in the wild-type of said antibody and six complementarity determining regions (CDRs) that specifically bind a metal chelate, wherein said reactive site is in a position proximate to or within said complementarity-determining regions,

wherein said reactive site is introduced by mutagenizing a nucleic acid encoding said wild-type of said antibody, and

wherein said reactive site interacts with a reactive group on the metal chelate selected from carboxyl groups, hydroxyl groups, haloalkyl groups, dienophile groups, aldehyde groups, ketone groups, sulfonyl halide groups, thiol groups, amine groups, sulfhydryl groups, alkene groups, and epoxide groups.